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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/350,060	07/08/1999	DAVID MONROE CHAPMAN	W9443-02	7518

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EXAMINER

AHMED, SHEEBA

ART UNIT

PAPER NUMBER

1773

DATE MAILED: 06/24/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/350,060

Applicant(s)

Chapman

Examiner

Sheeba Ahmed

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Apr 1, 2002
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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DETAILED ACTION

Response to Appeal Brief

1. The finality of the rejections of Paper No. 6 is hereby withdrawn and prosecution reopened in view of the new grounds of rejection set forth below. Any inconvenience to the Applicants is regretted.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 23-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claim 23 recites a coating wherein "the coating has a total volume fraction in the range of 0.25 to 0.5". However, it is unclear what is meant by "total volume fraction" from the claims as well as the Specification. The phrase "total volume fraction" has not been defined or described in the Specification. Clarification is requested.

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Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 14-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Abe et al. (EP 0586846B1).

Abe et al. disclose an ink jet recording sheet comprising a support and an ink receiving layer coating (*corresponding to the coating of the claimed invention*) containing a cation-modified silica (*corresponding to the inorganic oxide of the claimed invention*) (Page 1, lines 57-58). The cation-modified silica is coated with a metal oxide such as aluminum oxide. The ink receiving layer contains various polymers such as polyvinyl alcohol (*corresponding to the water soluble polymer of the claimed invention*) and polyvinyl acetate (*corresponding to the non-ionic latex of the claimed invention*) used in combination with a cationic polymeric surfactant (Page 2). The coating is provided on the substrate in an amount of 10 g/m² (*thus meeting the limitations of claim 22*) (Page 5, lines 45-46). The Examiner takes the position that the silica disclosed by Abe et al. must have the claimed pore volume given that the chemical composition and the method of making the silica disclosed by Abe et al. and that of the claimed invention are identical as evidenced by the fact that the Applicants specifically state on Page 14 of the

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Specification that the cationic materials of the instant invention are prepared by the techniques given in US 3,007,878 and Abe specifically states that their cation modified silica is prepared by the method described in US 3,007,878. All limitations of claims 14-22 are either inherent or disclosed in the above reference.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5-8, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stokes et al. (US 5,660,928) in view of Alexander et al. (US 3,007,878).

Stokes et al. disclose a coated substrate for use in ink jet printing (Column 1, lines 5-10). The coated substrate has a first layer of a film or a nonwoven web (***corresponds to the substrate of the claimed invention***) and a second layer overlying the first layer and comprising a latex binder, 25 to 65 weight % hydrophillic silica (*since the silica is not soluble, the Examiner takes the position that the composition of the second layer must have a solids content of at least 25% by weight*) and a water soluble viscosity modifier (Column 2, lines 17-30). Examples of the latex binder include polyvinyl acetate (***corresponds to the non-ionic latex polymer of the claimed invention; the Examiner takes the position that the polyvinyl acetate disclosed by Stokes is not***

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ionic) (Column 3, lines 14-25), the hydrophillic silica has a pore volume of about 1 to about 2 cc/g (*corresponds to the porous inorganic oxide of the claimed invention*) (Column 3, lines 43-46) and the water soluble viscosity modifier may be a polyacrylamide (*corresponds to the water soluble polymer of the claimed invention*) (Column 4, lines 7-13). Stokes et al. but do not specifically state that the inorganic oxide possesses a cationic charge. However, Alexander et al. disclose colloidal, positively charged particles of a silica core coated with an aluminum oxide (Column 1, lines 11-15 and Column 3, lines 45-50) which are used in coating compositions to improve adhesion. Accordingly, it would have been obvious to one having ordinary skill in the art to replace the silica particles disclosed by Stokes et al. with the colloidal, positively charged particles of silica coated with an aluminum oxide given that use of such charged particles in coatings leads to better adhesion. With regards to the viscosity limitation, the Examiner takes the position that the composition of the second layer disclosed by Stokes et al. must have the claimed viscosity given that the chemical composition and the amount of each component in the composition disclosed by Stokes et al. and that of the claimed invention are identical.

5. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stokes et al. (US 5,660,928) in view of Alexander et al. (US 3,007,878) and Williams et al. (US 5,494,759).

Stokes et al. and Alexander et al., as discussed above, do not specifically state that coating comprises a cationic polymer. However, Williams et al. disclose a coating composition

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for preparing an ink receiving layer for a printing material (Column 1, lines 6-9). The printing material comprises a support substrate and an ink receiving layer applied to the support and containing a polyvinyl alcohol and/or a vinyl acetate homopolymer and a quaternary ammonium compound (Column 2, lines 19-23). The quaternary ammonium salt is preferably polydiallyldimethylammonium chloride (Column 2, lines 40-41). The ink receiving layer may contain inorganic pigments having a pore volume of about 1.0 to 2.5 ml/g wherein the amount of pigment is 15 to 80 wt.% of the ink receiving layer (Column 2, lines 49-55). The coating weight of the ink receiving layer when applied to the substrate is 0.5 to 15 g/m² (Column 2, lines 58-61). The substrate may be paper or a synthetic resin (Column 2, lines 62-67). Accordingly, it would have been obvious to one having ordinary skill in the art to add a cationic polymer to the coatings disclosed by Stokes et al. and Alexander et al. and to apply the coating to the substrate at a coating weight of 0.5 to 15 g/m² given that Williams et al. specifically teach that doing so leads to good water fastness and wet rub off properties in addition to a high color density, high image definition and high clarity.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stokes et al. (US 5,660,928) in view of Alexander et al. (US 3,007,878) and Vassiliades et al. (US 4,115,474).

Stokes et al. and Alexander et al., as discussed above, do not specifically state that the polyvinyl acetate is enclosed in a polyvinyl alcohol shell. However, Vassiliades et al. disclose microcapsules comprising a polymeric shell of polyvinyl alcohol encapsulating a polymeric core

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(Column 2, lines 11-20, 67-68 and Column 3, lines 22-25). Accordingly, it would have been obvious to one having ordinary skill in the art to add a polyvinyl alcohol shell to the polyvinyl acetate disclosed by Stokes et al. given that Vassiliades et al. specifically state that doing so is desirable to bond a nonadherent polymer to a cellulosic substrate.

7. Claims 1-3, 5-8, 10, 13, and 23-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al. (EP 0586846B1).

Abe et al. disclose an ink jet recording sheet comprising a support and an ink receiving layer coating containing a cation-modified silica (Page 1, lines 57-58). The cation-modified silica is coated with a metal oxide such as aluminum oxide (*the Examiner takes the position that the silica disclosed by Abe et al. must have the claimed pore volume given that the chemical composition and the structure of the silica disclosed by Abe et al. and that of the claimed invention are identical*). The ink receiving layer contains various polymers such as polyvinyl alcohol and polyvinyl acetate (*corresponding to the non-ionic latex polymer of the claimed invention*) used in combination with a cationic polymeric surfactant (*thus meeting the limitations of claims 25 and 26*)(Page 2). Abe et al. disclose the claimed invention but do not specifically state that the coating composition has a solids content of greater than 20% by weight, a volume fraction of 0.25 to 0.5, or a weight ratio of the polyvinyl acetate to the polyvinyl alcohol in the range of 0.2 to 5.0. However, the Examiner takes the position that it would have been obvious to one having ordinary skill in the art to have determined the optimum solids

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content, the optimum volume fraction and the optimum weight ratio of the nonionic latex to polyvinyl alcohol given that the drying property of the ink, the film forming properties of the ink-receiving layer and the gloss and sharpness of the image on the ink receiving layer can be controlled by optimizing the solids content and the weight ratio of one polymer to the other. With regards to the viscosity limitations, the Examiner takes the position that the composition of the second layer disclosed by Abe et al. must have the claimed viscosity given that the chemical composition and the amount of each component in the composition disclosed by Abe et al. and that of the claimed invention are identical.

8. Claims 4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al. (EP 0586846B1) in view of Vassiliades et al. (US 4,115,474).

Abe et al., as discussed above, do not specifically state that the polyvinyl acetate is enclosed in a polyvinyl alcohol shell. However, Vassiliades et al. disclose microcapsules comprising a polymeric shell of polyvinyl alcohol encapsulating a polymeric core (Column 2, lines 11-20, 67-68 and Column 3, lines 22-25). Accordingly, it would have been obvious to one having ordinary skill in the art to add a polyvinyl alcohol shell to the polyvinyl acetate disclosed by Abe et al. given that Vassiliades et al. specifically state that doing so is desirable to bond a nonadherent polymer to a cellulosic substrate.

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Response to Arguments

9. Applicant's arguments regarding the rejections under Stokes et al. in view of Alexander et al. and the arguments regarding the rejections under Abe have been fully considered but they are not persuasive.

Applicants argue that although Stokes discloses latex binders in combination with silica, the reference is silent as to the charge of the latex described therein. It is the Applicants position that one can not infer that the polyvinyl acetate disclosed by Stokes is non-ionic. In response, the Examiner would like to point out that Stokes simply discloses a polyvinyl acetate latex. It is clear from the chemical structure of polyvinyl acetate that the structure does not carry a charge and is hence non-ionic. The Applicants have submitted a document from Rohm&Haas that shows that polyvinyl acetate may be anionic. However, the Examiner takes the position that polyvinyl acetate can be rendered cationic or anionic by the appropriate modification but a non-modified polyvinyl acetate is simply non-ionic.

The Applicants further argue that the secondary reference to Alexander does not disclose porous cationic particles and that there is no express disclosure in either of these reference to combine their teachings. However, the Examiner takes the position that the silica disclosed by Alexander must have the claimed pore volume given that the Applicants specifically state on Page 14 of the Specification that the cationic materials of the instant invention are prepared by the techniques given in US 3,007,878 to Alexander. Furthermore, in response to Applicant's argument that there is no suggestion to combine the references, the Examiner recognizes that

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obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Alexander specifically teaches that their cation modified silica may be added to coating to improve adhesion.


With regards to Abe, the Applicants argue that again the disclosed latex is not non-ionic and that the combination of a non-ionic latex and porous cationic inorganic oxide particles has not been suggested by Abe. However, the Examiner would again like to point out that Abe simply discloses a polyvinyl acetate latex. It is clear from the chemical structure of polyvinyl acetate that the structure does not carry a charge and is hence non-ionic and it is the Examiner's position that polyvinyl acetate can be rendered cationic or anionic by the appropriate modification but a non-modified polyvinyl acetate is simply non-ionic. Furthermore, the Examiner takes the position that the silica disclosed by Abe et al. must have the claimed pore volume given that the chemical composition and the method of making the silica disclosed by Abe et al. and that of the claimed invention are identical as evidenced by the fact that the Applicants specifically state on Page 14 of the Specification that the cationic materials of the instant invention are prepared by the techniques given in US 3,007,878 and Abe specifically states that their cation modified silica is prepared by the method described in US 3,007,878.


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Conclusion

10. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Sheeba Ahmed whose telephone number is (703) 305-0594. The Examiner can normally be reached on Monday-Friday from 8am to 5pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Paul Thibodeau, can be reached at (703) 308-2367. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-5436.

 Sheeba Ahmed
June 13, 2002


Paul Thibodeau
Supervisory Patent Examiner
Technology Center 1700